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RHYTHM PUZZLE - ANSWER

An atypical arrhythmia

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Answer to rhythm puzzle

There is a narrow complex tachycardia with a rate of approximately 160 beats/min. The electrical axis is intermediate (almost vertical). In every supraventricular tachycardia the position of the P wave is critical for the diagnosis. Here the P wave seems to be present 120 ms before the QRS complex (i.e. long RP, short PR interval). The P-wave configuration is negative in leads II and III and positive in lead I (V1 and V2). Based on the position of the P wave the differential diagnosis includes atrial tachycardia, orthodromic AV re-entry (with a slowly conducting bypass track) and atypical atrioventricular nodal reentrant tachycardia (AVNRT, from atrium to ventricle via the fast pathway and from ventricle to atrium via the slow pathway).

Close inspection of Fig. 1 reveals that the P wave is lacking in the 4th full RR interval calculated from the right (arrows). This excludes the first two possibilities and leaves atypical AVNRT as the most likely diagnosis.

Fig. 1 An enlargement of leads I, II and III at a different point in time, with arrows showing that the P wave is lacking

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